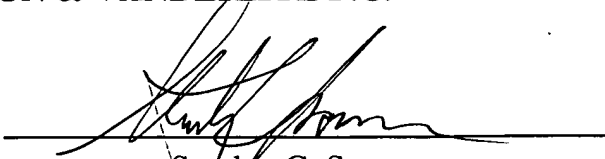


This response is timely filed. Please proceed to process the Amendment filed April 12, 2001 and with the examination of this application.

Respectfully submitted,

**NIXON & VANDERHYTE P.C.**

By: \_\_\_\_\_

  
Stanley C. Spooner  
Reg. No. 27,393

SCS:kmm  
1100 North Glebe Road, 8th Floor  
Arlington, VA 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100

DECLASSIFIED BY ORIGINATING AGENCY  
**CONFIDENTIAL**

MARKED VERSION TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Page 1, the paragraph beginning at line 1:

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a phased array radio frequency pulse generator particularly suitable for producing a plurality of pulsed radio frequency electrical signals.

2. Discussion of Prior Art

Page 3, the paragraph beginning at line 13:

There is thus a need for a generally improved phased array radio frequency pulse generator which will allow for electronic control of the relative phase of the parts therein which produce high peak power radio frequency pulses, for example with peak powers of 100MW or higher.

SUMMARY OF THE INVENTION

Page 6, the paragraph beginning at line 5:

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the present invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings in which:

DECLASSIFIED BY ORIGINATING AGENCY  
**CONFIDENTIAL**

DECLASSIFIED BY ORIGINATING AGENCY

CONFIDENTIAL

Page 6, the paragraph beginning at line 16:

Figure 3 is a diagrammatic view of a phased array radio frequency pulse generator according to the present invention.

DETAILED DISCUSSION OF PREFERRED EMBODIMENTS

**IN THE CLAIMS:**

Add new claims 8-15 as follows:

--8. (NEW) A phased array radio frequency pulse generator for producing a plurality of pulsed radio frequency signals, including:

a plurality of radio frequency pulse generator units, each unit comprising:

a non-linear dispersive electrical circuit incorporating at least one non-linear element including a material sensitive to low power signals; and

a source of low power direct current for producing a variable power control signal and applying the control signal to the at least one non-linear element to modify the extent of the non-linearity of the element and thereby vary the timing of the radio frequency electrical output signal generated;

and programmed digital computer control for adjusting the value of the control signals provided in each unit to vary the relative phases of the output signals from the radio frequency pulse generator units in a phased array on a pulse to pulse basis.

--9. (NEW) A generator according to claim 8, wherein each unit non-linear dispersive electrical circuit includes a plurality of non-linear elements in the form of inductors interconnected in

DECLASSIFIED BY ORIGINATING AGENCY

CONFIDENTIAL

**CONFIDENTIAL**

series, a first array of coupling capacitors each linking the input side of one inductor to the output side of the next inductor in line for dispersive purposes, and a second array of capacitors arranged in parallel to one another such that each capacitor of the second array connects the input side of a different inductor to a common electrical line.--

--10. (NEW) A generator according to claim 8, wherein each non-linear element material is a ferromagnetic material sensitive to a magnetic field and wherein the source of low power direct current is operable to produce a relatively small variable electric current which gives rise to a variable low value magnetic field which is applied to the ferromagnetic material to adjust the initial state of the non-linear element and alter the behavior of the non-linear element during modulation of a high power radio frequency signal to change the timing of the radio frequency signal outputted from the generator unit.--

--11. (NEW) A generator according to claim 10, wherein each source of low power direct current includes a source of low power direct current which is applied to the input side of the non-linear dispersive electrical circuit with a high voltage input and which is returned to the source from the output side of the non-linear dispersive electrical circuit at the radio frequency signal output.--

--12. (NEW) A generator according to claim 8, wherein the or each non-linear element material is ferroelectric material sensitive to an electric field and wherein each control signal producing means is operable to produce a variable low value electric field

DECLASSIFIED BY ORIGINATING AGENCY  
**CONFIDENTIAL**

**CONFIDENTIAL**

which is applied to the ferroelectric material to adjust the initial state of the non-linear element and alter the behavior of the non-linear element during modulation of a high power radio frequency signal to change the timing of the radio frequency signal outputted from the generator unit.--

--13. (NEW) A generator according to claim 11, wherein the computer is a computer control linked to each source of low power direct current and operable to vary the value of the control signals provided in each unit.--

--14. (NEW) A phased array radio frequency pulse generator for producing a plurality of pulsed radio frequency signals, said generator comprising:

a plurality of radio frequency pulse generator units, each unit comprising

a non-linear dispersive electrical circuit incorporating at least one non-linear element including a material sensitive to low power signals; and

a source of low power direct current for producing a variable power control signal and applying the control signal to the at least one non-linear element to modify the extent of the non-linearity of the element and thereby vary the timing of the radio frequency electrical output signal generated; and

a programmed digital computer control for adjusting the value of the control signals provided in each unit to vary the relative phases of the output signals from the radio frequency pulse generator units in a phased array on a pulse to pulse basis, wherein the or each non-linear element material is a ferromagnetic

DECLASSIFIED BY ORIGINATING AGENCY  
**CONFIDENTIAL**

DECLASSIFIED BY ORIGINATING AGENCY  
**CONFIDENTIAL**

material sensitive to a magnetic field and wherein the source is operable to produce a relatively small variable electric current which gives rise to a variable low value magnetic field which is applied to the ferromagnetic material to adjust the initial state of the non-linear element and alter the behavior of the non-linear element during modulation of a high power radio frequency signal to change the timing of the radio frequency signal outputted from the generator unit, wherein each source includes a source of low power direct current which is applied to the input side of the non-linear dispersive electrical circuit with a high voltage input and which is returned to the source from the output side of the non-linear dispersive electrical circuit at the radio frequency signal output.--

--15. (NEW) A generator according to claim 14, wherein the computer is a computer control linked to each source of low power direct current and operable to vary the value of the control signals provided in each unit.--

DECLASSIFIED BY ORIGINATING AGENCY  
**CONFIDENTIAL**